

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

IN RE PLASTICS ADDITIVES
ANTITRUST LITIGATION

Master Docket No. 03-CV-2038

THIS DOCUMENT RELATES TO:
Gitto/Global Corp. v. Rohm & Haas Co.,
et al., No. 03-CV-2038
(Direct Purchaser Class Action)

MEMORANDUM OPINION

Presently before the Court is the issue of class certification, and the parties have offered extensive briefing on this issue, including Plaintiffs' Revised Motion for Class Certification (Doc. Nos. 458-59), Defendants' Supplemental Response in Opposition to the Motion for Class Certification (Doc. No. 473), Plaintiffs' Reply in Further Support of their Revised Motion for Class Certification (Doc. No. 474), Defendants' Second Supplemental Brief in Opposition to the Motion for Class Certification (Doc. No. 494), Plaintiffs' Supplemental Memorandum in Support of their Revised Motion for Class Certification (Doc. No. 498), Plaintiffs' Post-Hearing Submission (Doc. No. 508), Defendants' Outline of Evidence Presented at the June 28-30, 2010 Class Certification Hearing (Doc. No. 509), Plaintiffs' Post-Hearing Memorandum in Further Support of their Revised Motion for Class Certification (Doc. Nos. 510 & 514), Defendants' Post-Hearing Memorandum in Further Opposition to the Motion for Class Certification (Doc. No. 513), Plaintiffs' Proposed Findings of Fact and Conclusions of Law (Doc. No. 512), and

Defendants' Proposed Findings of Fact and Conclusions of Law (Doc. No. 511).¹ For the reasons that follow, Plaintiffs' Motion for Class Certification is denied.

I. FACTUAL BACKGROUND AND PROCEDURAL HISTORY

Plaintiffs seek to prosecute claims under the Clayton Act, 15 U.S.C. § 15, alleging a price-fixing conspiracy in violation of the Sherman Act, 15 U.S.C. § 1, on behalf of two groups of class members: (1) all direct purchasers of organotin heat stabilizers ("tins," "tin stabilizers," or "tin products") that purchased tin products between January 1, 1990 and January 31, 2003;² and (2) all direct purchasers of epoxidized soybean oil ("ESBO" or "ESBO products") that purchased ESBO products between January 1, 1990 and January 31, 2003.³ (Pls.' Mem. Supp. Revised Mot. 1.) When this case was commenced in 2003, several additional groups of products were at issue, including mixed metal heat stabilizers, methacrylate butadiene styrene impact modifiers, acrylic impact modifiers, and acrylic processing aids. On August 31, 2006, this Court

¹Both Plaintiffs and Defendants incorporate by reference the arguments set forth in the briefing of the original Motion for Class Certification (Doc. No. 213) that was filed in August of 2005.

²Plaintiffs define Subclass I as follows: "All persons (excluding governmental entities, defendants, other producers of Plastics Additives, and the present and former parents, subsidiaries and affiliates of the foregoing) who purchased organotin heat stabilizers in the United States directly from any of the defendants formerly, currently or subsequently named in the action or from any predecessors, parents, subsidiaries or affiliates thereof at any time during the period from January 1, 1990 to and including January 31, 2003 (the '[c]lass [p]eriod')." (Pls.' Mem. Supp. Revised Mot. 1.)

³Plaintiffs define Subclass II as follows: "All persons (excluding governmental entities, defendants, other producers of Plastics Additives, and the present and former parents, subsidiaries and affiliates of the foregoing) who purchased epoxidized soybean oil in the United States directly from any of the defendants formerly, currently or subsequently named in the action or from any predecessors, parents, subsidiaries or affiliates thereof at any time during the [c]lass [p]eriod)." (Pls.' Mem. Supp. Revised Mot. 1.)

issued an Order granting Plaintiffs' Motion for Class Certification upon the condition that Plaintiffs divide their proposed class into six subclasses, one subclass for each of the six groups of products at issue. In that Order, in line with what we believed to be common practice at the time, we declined to balance the credibility of the parties' experts on the issue of the predominance of common evidence demonstrating impact. On December 20, 2006, this Court certified this matter as a class action with six subclasses. An appeal followed, and this Court stayed proceedings. On January 27, 2009, the Third Circuit vacated this Court's December 20, 2006 Class Certification Order and remanded this case for further proceedings "consistent with [its] opinion" in In re Hydrogen Peroxide Antitrust Litigation, 552 F.3d 305 (3d Cir. 2008).

Four of the groups of products that were originally at issue are no longer at issue because Plaintiffs settled their claims against all Defendants that produced mixed metal heat stabilizers as well as all Defendants that only made methacrylate butadiene styrene impact modifiers and acrylic impact modifiers or acrylic processing aids. Accordingly, when Plaintiffs filed their Revised Motion for Class Certification on September 16, 2009, they sought certification of only two subclasses: tins and ESBO. The remaining Defendants are Arkema Inc., Rohm and Haas Company, The Dow Chemical Company, and Union Carbide Corporation. During the class period, remaining Defendants Arkema and Rohm and Haas sold tins, and remaining Defendants The Dow Chemical Company, Union Carbide Corporation, and Arkema sold ESBO.⁴ The proposed class representatives for the tin subclass are Crane Group Co., Crane Plastics Manufacturing Ltd., Crane Plastics Siding LLC, Ex-Tech Plastics, Inc., and Heritage Plastics,

⁴Defendants who have entered into settlement agreements also sold tins and ESBO. Tins were sold by Akcros, Baerlocher, Crompton, and Ferro. ESBO was sold by Akcros, Crompton, and Ferro.

Inc. The proposed class representatives for the ESBO subclass are Crane Group Co., Ex-Tech Plastics, and Isaac Industries, Inc. On June 28, 29, and 30, 2010, this Court held a class certification hearing where the parties introduced documentary evidence and the testimony of their respective experts. Both parties introduced the testimony of economic experts; Plaintiffs introduced the testimony of Dr. John Beyer, and Defendants introduced the testimony of Mr. David Kaplan. Defendants also introduced the testimony of an industry expert, Dr. John Summers. Based on our review of the evidence and arguments presented, we conclude that Plaintiffs have not met their burden under Rule 23.

II. THE LEGAL FRAMEWORK

As noted above, this Court's prior Order granting class certification was vacated by the Third Circuit Court of Appeals for proceedings consistent with the Hydrogen Peroxide decision. In that decision, the Third Circuit Court of Appeals clarified certain aspects of class certification procedure, Hydrogen Peroxide, 552 F.3d at 307, and we now revisit Plaintiffs' request for certification of the proposed classes in light of the clarification provided. "Class certification is proper only 'if the trial court is satisfied, after a rigorous analysis, that the prerequisites' of Rule 23 are met." Hydrogen Peroxide, 552 F.3d at 309 (quoting Gen. Tel. Co. of Sw. v. Falcon, 457 U.S. 147, 161 (1982)). Rule 23 is not a pleading rule, and a district court therefore may "delve beyond the pleadings" to determine whether Rule 23's requirements are met. Id. (citations omitted). In fact, a district court "must resolve all factual or legal disputes relevant to class certification, even if they overlap with the merits—including disputes touching on the elements of the cause of action." Id. at 307. Moreover, a district court's "obligation to consider all relevant evidence and arguments extends to expert testimony, whether offered by a party seeking

class certification or by a party opposing it.” Id. “Factual determinations necessary to make Rule 23 findings must be made by a preponderance of the evidence.” Id. at 320. “In other words, to certify a class the district court must find that the evidence more likely than not establishes each fact necessary to meet the requirements of Rule 23.” Id.

Under Rule 23, the party seeking class certification must first establish the four requirements of Rule 23(a). If all four requirements of Rule 23(a) are met, a class may be certified under Rule 23(b)(1), 23(b)(2), or 23(b)(3). Our inquiry is focused on Rule 23(b) because the parties to this action have stipulated to the satisfaction of the Rule 23(a) requirements.⁵ (See Defs.’ Class Certification Hr’g Mem. 9; Pls.’ Class Certification Hr’g Mem. 9.) Plaintiffs seek certification under Rule 23(b)(3), which is permissible when the court finds that the Rule’s twin requirements of predominance and superiority are met: “the questions of law or fact common to class members predominate over any questions affecting only individual members, and that a class action is superior to other available methods for fairly and efficiently adjudicating the controversy.” Fed. R. Civ. P. 23(b)(3). Defendants focus their opposition to certification on the requirement of predominance, which “tests whether proposed classes are sufficiently cohesive to warrant adjudication by representation.” Hydrogen Peroxide, 552 F.3d at 310-11 (quoting Amchem Prods., Inc. v. Windsor, 521 U.S. 591, 623 (1997)). “Issues common to the class must predominate over individual issues. . . .” Id. at 311 (quoting In re Prudential Ins. Co. Am. Sales Practice Litig., 148 F.3d 283, 313-14 (3d Cir. 1998)). Thus, “[i]f proof of the essential elements of the cause of action requires individual treatment, then class

⁵Because we deny class certification, we will not independently determine that the Rule 23(a) requirements are met.

certification is unsuitable.’” Id. (quoting Newton v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 259 F.3d 154, 172 (3d Cir. 2001)). We therefore “examine the elements of plaintiffs’ claim ‘through the prism’ of Rule 23 to determine whether” a class should be certified. Id. (quoting Newton, 259 F.3d at 181).

III. DISCUSSION

The elements of Plaintiffs’ antitrust claims are: (1) violation of the antitrust laws—here, violation of § 1 of the Sherman Act; (2) individual injury resulting from that violation; and (3) measurable damages. Id. (citing 15 U.S.C. § 15, Am. Bearing Co. v. Litton Indus., Inc., 729 F.2d 943, 948 (3d Cir. 1984), and Blades v. Monsanto Co., 400 F.3d 562, 566 (8th Cir. 2005)). Defendants stipulate that the existence of the tin and ESBO price-fixing conspiracies is capable of proof at trial using common evidence, so we need not inquire into satisfaction of the predominance requirement with regard to the violation element of Plaintiffs’ claims. (See Joint Stipulation, May 18, 2010, Doc. No. 500.) While Defendants contend that individual issues will predominate with regard to the damage element, (see Defs.’ Post-Hr’g Mem. 8 n.4), they focus their challenge on the injury element, (see Hr’g Tr. 18:23-19:1, June 28, 2010 AM Session (“We’re not going to talk about conspiracy and . . . frankly, we’re not going to talk about damages, although if the testimony of Dr. Beyer doesn’t support impact, it won’t support damages either.”)). Accordingly, the key issue for resolution is whether Plaintiffs have demonstrated that individual injury is capable of proof by evidence common to the class.

In antitrust cases, “[p]roof of injury (whether or not an injury occurred at all) must be distinguished from calculation of damages (which determines the actual value of the injury).” Newton, 259 F.3d at 188. The individual injury element is also known as antitrust impact, and

“to prevail on the merits, every class member must prove at least some antitrust impact resulting from the alleged violation.” Hydrogen Peroxide, 552 F.3d at 311 (citing Bogosian v. Gulf Oil Corp., 561 F.2d 434, 454 (3d Cir. 1997)). “[I]mpact often is critically important for the purpose of evaluating Rule 23(b)(3)’s predominance requirement because it is an element of the claim that may call for individual, as opposed to common, proof.” Id. at 311 (citing In re New Motor Vehicles Can. Exp. Antitrust Litig., 522 F.3d 6, 20 (1st Cir. 2008)). “Plaintiffs’ burden at the class certification stage is not to prove the element of antitrust impact, although in order to prevail on the merits each class member must do so.” Id. “Instead, the task for plaintiffs at class certification is to demonstrate that the element of antitrust impact is capable of proof at trial through evidence that is common to the class rather than individual to its members.” Id. at 311-12. “[T]he question at [the] class certification stage is whether, if such impact is plausible in theory, it is also susceptible to proof at trial through available evidence common to the class.” Id. at 325. Accordingly, in determining whether Plaintiffs have met their burden, we must rigorously assess the “available evidence and the method or methods by which [P]laintiffs propose to use the evidence to prove impact at trial.” See id. at 312 (citations omitted).

A. Plaintiffs’ Evidence and Methods

In this case, Plaintiffs claim that all class members were impacted by the alleged conspiracy because they paid higher prices for tins and/or ESBO than they would have in the absence of the conspiracy. They plan to demonstrate impact through some of the same methods that were introduced by the plaintiffs in Hydrogen Peroxide: (1) Defendants’ pricing behavior; (2) economic characteristics of the tins and ESBO markets; (3) analysis of pricing structure in these markets; and (4) regression analysis. See id. at 312-14. Defendants challenge each of the

methods presented. In accordance with the Hydrogen Peroxide decision, we must now determine whether Plaintiffs have demonstrated that impact is capable of proof at trial on a basis common to the class through the use of the proposed methods. Below, we discuss in turn each of the methods proposed by Plaintiffs.

B. Defendants' Pricing Behavior

We find that Plaintiffs cannot demonstrate antitrust impact on a basis common to the class through reference to list prices and price increase announcements. Plaintiffs point to price lists that some Defendants maintained for tin products,⁶ as well as price increase announcements that Defendants issued to class members in connection with tin and ESBO Products.⁷ Plaintiffs argue that the maintenance of price lists alone shows that impact can be proven by common evidence, and they conclude that Defendants' documents show that the "[p]rice increases through price announcements or price lists affected all tins and ESBO customers." (Pls.' Proposed

⁶Plaintiffs have not produced price lists for Arkema, a large producer of tins. (Hr'g Tr. 76:15-19, June 28, 2010 AM Session.) Additionally, Plaintiffs have not produced any price lists for the ESBO products at issue in this litigation.

⁷Plaintiffs produced charts summarizing the price increase announcements for tins and ESBO. (See P21, slide 21 (summary of tin stabilizer price increase announcements); P21, slide 90 (summary of ESBO price increase announcements).) The tin summary includes only nine price increases throughout the entire thirteen-year class period. (P21, slide 21.) Of the nine price increases, none were made by Baerlocher, and therefore none were actually made by all tin producers. (*Id.*; see also Hr'g Tr. 71:19-23, June 29, 2010 AM Session.) Additionally, Ferro made only three of the announcements, and Akcros made only five. (P21, slide 21.) Thus, only three tin producers joined in all of the nine announcements. (*Id.*)

The ESBO price increase summary includes thirteen announcements over the thirteen-year class period. (P21, slide 90.) Again, Baerlocher is not even listed on the chart, and therefore none of the thirteen announcements were made by all producers. (*Id.*) Additionally, only one ESBO producer made all thirteen announcements. (*Id.*) Akcros made only seven announcements, and Ferro made only nine announcements. (*Id.*)

Findings ¶ 32(e); see also Pls.’ Post-Hr’g Mem. 8; Pls.’ Mem. Supp. Revised Mot. 10.)

However, the evidence of record shows that the prices paid by customers did not correspond with Defendants’ price increases. Accordingly, the price lists and price increase announcements cannot serve as common evidence of impact. See Hydrogen Peroxide, 552 F.3d at 314 (observing that the defendants’ expert “found some of defendants’ price-increase announcements were ineffective—actual prices did not follow the purported announcements—suggesting list prices could not be used to measure antitrust impact on a basis common to the class”).

Plaintiffs have done no empirical analysis of the actual effect of the price increases upon which they rely. (Hr’g Tr. 85:14-17, June 28, 2010 AM Session (where Dr. Beyer testified that he “did not do an empirical analysis of each and every announced price increase to see to what extent, if at all, transaction prices . . . increased”).) Rather, in an attempt to demonstrate that the price increase announcements were effective, Plaintiffs rely on documents collected from Defendants. Some of these documents simply report price increases for tin and ESBO products. (See P161 (Atochem March 10, 2000 monthly report indicating a “[s]tabilizers 6¢/lb [3%] increase”); P164 (July 1, 2002 price increase chart listing the prices charged to Rohm and Haas customers pursuant to an Advastab Reverse Ester price increase of 6%); P165 (June 1, 2002 price increase chart listing the prices charged to Rohm & Haas customers pursuant to a TGA stabilizer price increase of 6%); P298 (August 1999 highlights of operations document reporting that “a five cent a pound price increase is being instituted effective September 1 [for epoxidized soybean oil”).) Others report that certain price increases were “holding” without explaining what the authors meant by this. (See P160 (October/November 1996 monthly report stating that “[t]he tin stabilizer price increase has held as has the last increase in epoxidized soybean oil”); P166

(August 2002 monthly comments document stating that “[t]he price increase for 2ME Reverse Ester Stabilizers has now become effective at all customers . . . uniformly across the board” but also that, “[w]hile it appeared that the TGA Stabilizer increase held, it appears to be weakening at a number of [k]ey [a]ccounts (Crane, PolyOne, Georgoe Gulf, Vycom, etc.) due to lack of support from Crompton, who were the first to announce”); P296 (June 1996 monthly report stating that “[a]ll suppliers have now announced a \$0.03/lb. increase in epoxidized soybean oil[,] and it looks like this will hold”); P297 (September 1996 monthly report stating that “[a] recent \$0.03/lb increase has held[,] and we are planning a further increase after the first of the year”); P299 (October 1999 highlights of operations document indicating that “[t]he price increase [for epoxidized soybean oil] is holding at a \$0.03/ pound increase.”). Finally, some of the documents describe certain price increases as being “supported” by other producers, (see P162 (January 2002 monthly report stating that “[t]he MET tin increase appears to have been supported by all producers with few exceptions to report as on Jan[.] 31”)), or “successfully implemented,” (see P163 (March 2002 monthly comments document indicating that “[w]ith the exception of 2-ME stabilizers, where we have successfully completed implementation of a price increase of 7% on TM-694 and lesser amounts on the higher priced grades, pricing in all product families continues to be extremely competitive”)). According to Plaintiffs, these documents serve as common evidence of impact because they show that price increases affected all customers. (Pls.’ Post-Hr’g Mem. 7.)

We must first clarify what Plaintiffs mean when they claim that the documents described above demonstrate that the price increases “affected” all customers. Plaintiffs do not claim that Defendants were able to charge all customers the amounts set forth in their price lists or increase

announcements; rather, they concede that customers individually negotiated prices, and that prices therefore varied from customer to customer. Nor do Plaintiffs claim that prices actually increased for tins and ESBO throughout the class period. In fact, Plaintiffs admit that prices for tins and ESBO fell from the beginning to the end of the class period. (See Pls.’ Proposed Findings ¶ 32(h) (stating that “prices for tins and ESBO were generally declining” during the class period); Hr’g Tr. 85:5-7, June 28, 2010 AM Session (where Dr. Beyer stated that “[i]f you look at from the beginning to the end of the class period, the prices for tin stabilizers fell.”); P20 p.15 (graph created by Dr. Beyer showing that Arkema’s tin stabilizer prices declined during the class period); Hr’g Tr. 5:13-20, June 29, 2010 Evening Session (where Dr. Kaplan described one of Dr. Beyer’s graphs as showing that ESBO prices remained stable or flat throughout the conspiracy period).) As summarized by Dr. Beyer, Plaintiffs claim that the documents cited above demonstrate that the price increases affected all customers because they did increase prices for the products at issue for at least “a limited period of time,” and they additionally allow one to infer that, “even if there had been no visible effect on the [price], the price increase announcements could still have an effect [on] prices not being reduced further, compared to what they would have been without [the] alleged conspiracy.” (Hr’g Tr. 84:21-85:2, June 28, 2010 AM Session; see also Pls.’ Supplemental Mem. 7 n.9 (“Since tin and ESBO prices were generally decreasing after December 1998 . . . , one would not necessarily expect customers’ transaction prices to increase after price increase announcements issued after that date.”); id. (“[A] conspiracy to maintain prices could, in theory, impact the entire class despite a decrease in prices for some customers in parts of the class period, and despite some divergence in the prices different plaintiffs paid.” (quoting Hydrogen Peroxide, 552 F.3d at 325))); Pls.’ Post-Hr’g Mem.

11 (“[A] cartel can prevent prices from declining as far as they would have otherwise through the use of price announcements . . . , which is likely here where . . . prices for both tins and ESBO decrease over a portion of the class period.”).)

The flaw in Plaintiffs’ argument, at least with respect to their attempt to show that impact can be proven for all or substantially all class members through price lists and price increases, is that the prices actually paid by some customers for the tin and ESBO products at issue have no relationship with Defendants’ price increases. Mr. Kaplan provided a number of charts that compare the date of a price increase announcement with the prices paid by individual customers before and after the price increase announcement. (Hr’g Tr. 6:7-7:5, July 29, 2010 Evening Session.) For example, Mr. Kaplan produced charts that list the average monthly prices paid by several purchasers of tin and ESBO products for several months before and after price increase announcements were issued for those products, and the charts show that the average monthly prices paid by the listed customers for the listed products did not change at all in response to the announcements. (Kaplan Orig. Aff. Exs. 25 & 51.) This evidence shows that while some price increases may have increased the actual prices paid by some class members for some products for some period of time, other class members experienced no increase in price for any period of time. More importantly, Mr. Kaplan produced graphs showing that, for several individual customers, the average monthly prices that they actually paid for certain tin and ESBO products did not correspond in any way to the price increase announcements for those products. (Id. at Exs. 24 & 50.) Thus, while it may be theoretically true that a price-fixing conspiracy can maintain supra-competitive prices by preventing prices from falling as low as they would have in the absence of the conspiracy, the price list and price increase evidence presented by Plaintiffs in this case does

not support that theory.

C. Market Characteristics

We also find that Plaintiffs cannot demonstrate impact on a basis common to the class through their reliance on Dr. Beyer's opinion that the markets for tins and ESBO display certain characteristics that show that "conspiratorially set prices would have been unavoidable by all plaintiffs and subclass members." (Pls.' Mem. Supp. Revised Mot. 15; Pls.' Post-Hr'g Mem. 13-16; Pls.' Supplemental Mem. 4-5.) The market characteristics described by Dr. Beyer include: (1) the interchangeability of tins; (2) the interchangeability of ESBO; and (3) Defendants' domination of the markets for these products. (Pls.' Post-Hr'g Mem. 14.) While a market with the characteristics described by Dr. Beyer may in theory be vulnerable to a price-fixing conspiracy, we find that the markets at issue in this case do not actually possess those characteristics. First, tins are not interchangeable. Nor are ESBO products. Rather, some tins and ESBO products have distinct performance attributes, and price therefore is not the principal determinant in customers' purchasing decisions. In addition, individual customers were able to avoid paying supra-competitive prices because Defendants competed on price with other Defendants as well as non-Defendant suppliers. Therefore, Dr. Beyer's description of the markets is inaccurate, and Plaintiffs' cannot rely on that inaccurate description to demonstrate impact.

1. Product Interchangeability

According to Dr. Beyer, when products produced by various suppliers are

interchangeable,⁸ customers decide among those suppliers' products based "largely on the basis of price." (Hr'g Tr. 53:15-17, June 28, 2010 AM Session.) Upon review of the evidence presented in this case, we find that Plaintiffs have not shown by a preponderance of the evidence that the tin or ESBO products at issue are interchangeable. We begin with a brief overview of the products themselves. Tin and ESBO are used in the manufacture of polyvinyl chloride ("PVC"). (Hr'g Tr. 120:10-13, June 29, 2010 AM Session.) During the manufacturing process, PVC is "heated and melted and shaped into the final product." (Id. at 120:17-19.) Heat stabilizers are required to "repair the PVC, to maintain its properties, to avoid the PVC turning yellow and brown and black." (Id. at 120:19-23.) Tins are used as primary stabilizers, whereas ESBO products are used as secondary or co-stabilizers. (Id. at 121:1-24.) For the most part, tin stabilizers are used in rigid PVC applications, (id. at 121:15-21), whereas ESBO products are mostly used in flexible PVC applications because they serve as plasticizers that soften PVC, (id. at 121:23-25).

Dr. Beyer and Dr. Summers offered conflicting testimony with regard to the interchangeability of the tin and ESBO products. Because Dr. Beyer has no independent expertise in the products at issue, his opinion is based on his interpretation of Defendants' documents and his review of deposition testimony, informed by his expertise in general applied economics. (Hr'g Tr. 54:18-23, June 28, 2010, AM Session.) On the other hand, Dr. Summers—who, prior to the class certification hearing that we held in this matter, had never

⁸"Interchangeability implies that one product is roughly equivalent to another for the use to which it is put; while there may be some degree of preference for one over the other, either would work effectively." Queen City Pizza, Inc. v. Domino's Pizza, Inc., 124 F.3d 430, 437 (3d Cir. 1997) (quoting Allen-Myland, Inc. v. Int'l Bus. Machs. Corp., 33 F.3d 194, 206 (3d Cir. 1994)).

testified as an expert witness—was actually familiar with the products themselves. He holds a Bachelor of Science degree in chemical engineering, a Master of Science degree in chemistry, and a Ph.D. in macromolecular science and engineering, and he worked for over forty years with a company called PolyOne, which during the period of Dr. Summers’ employment was the largest purchaser of plastics additives in the world. (Hr’g Tr. 93:15-94:4, 95:4-11, June 29, 2010 AM Session.) For thirty-three years of his employment, Dr. Summers worked with PolyOne’s purchasers, and it was his responsibility to advise the purchasers as to which materials to buy. (Id. at 112:16-113:6.) In addition, for about twenty-five years, PolyOne sold PVC resins, and in that aspect of its business, Dr. Summers helped purchasers at other companies decide which materials would be most successful for the manufacture of certain products, and therefore which materials to buy. (Id. at 113:7-14.) Because Dr. Summers’ opinions in this matter are based on decades of experience working with the products at issue, whereas Dr. Beyer’s opinions are based on his review of documents and deposition testimony, we give Dr. Summers’ opinions substantially more weight than we accord to the opinions offered by Dr. Beyer on the interchangeability of tins and ESBO. Based on his experience as well as his technical expertise, Dr. Summers testified that “there were many non-price considerations in choosing and purchasing” the tin and ESBO products at issue. (Id. at 118:18-19.) We find that testimony convincing, and we therefore accept it. We explain below.

i. Interchangeability of Tins

Throughout the class period, there were about 256 tin stabilizer products offered by

Defendants.⁹ (Hr’g Tr. 45:12-17, June 29, 2010 Afternoon Session.) Plaintiffs agree that not all 256 of these tin products are interchangeable. Rather, they argue that, “for a given function[,] purchasers had choices from different suppliers that were interchangeable, even if not chemically identical.” (Pls.’ Proposed Findings ¶ 35(a); Hr’g Tr. 53:18-54:2, June 28, 2010 AM Session.) In support of this contention, Plaintiffs direct our attention to transcribed deposition testimony of an employee of Crane, as well as documents obtained from Defendants during discovery. The evidence shows that some tin products may be used interchangeably with some other tin products for some functions. However, we find that not all tin products that can be used for a certain function are interchangeable.

Dr. Summers testified at length in support of his conclusion that “tin stabilizers are not just tin stabilizers, but they’re very, very complex and must be chosen based on their properties.” (Hr’g Tr. 133:24-134:1, June 29, 2010 AM Session.) Because Plaintiffs agree that not all tins are interchangeable, we will not review Dr. Summers’ testimony in detail. The import of his testimony, which we accept, is that the chemistries of tin stabilizers determine their performance, and a product’s performance characteristics determine its suitability for a given end use. (Id. at 122:14-19.) Relevant performance characteristics include reactivity and stabilizing ability. For example, a stabilizer that reacts quickly will be necessary for “clear” or “water-white products” like packaging, but one that can stabilize for a long period of time will be needed for products like window profiles that require long periods of heating and melting. (Id. at 124:6-125:5.)

⁹No Defendant manufactured each of the varieties of tin stabilizers for the entire class period. (Hr’g Tr. 134:2-10, June 29, 2010 AM Session.) During most of the class period, for example, Arkema manufactured butyl tin but did not manufacture methyl tin until about 2000. (Id. at 127:4-7.)

Hydrocarbons, which are oil-like materials, are components of some tin stabilizers, and such stabilizers are desirable for end uses that include handling food or medical solutions because they are not extracted into water or medical solutions very fast. (Id. at 128:15-25.) Other characteristics of tin stabilizers include an odor that results from the presence of sulphur and is undesirable in flexible PVC products but is commonly used in injection molding applications like electrical housings, (id. at 130:1-17), and weatherability that is desired in products like siding and windows but not needed in pipe applications, (id. at 131:8-24).

Because of these varying characteristics, customers do not purchase new materials without first going through an approval process that takes “considerable time.” (Hr’g Tr. 22:4, June 29, 2010 Afternoon Session.) For example, before using a stabilizer in the pipe industry, pipe has to be manufactured using the new product and tested “long term” so that customers can be sure “the pipe will last fifty years under the pressure it’s designed for.” (Id. at 22:10-13.) This process can take “a year or more” for both the producer and the customer. (Id. at 22:7-13.) In addition, some applications—like the electrical housings used in washers, dryers, and dishwashing machines—are regulated by Underwriters Laboratories (“UL”). (Id. at 23:2-4.) “To get a rating under UL, . . . takes a year of testing to assure that [the product] ages for that fifty[-]year time frame without degrading and causing electrical . . . shortage problems.” (Id. at 23:5-9.) Thus, price is not the principal determinant in customers’ purchasing decisions regarding tin stabilizers. Rather, customers are concerned with the performance characteristics of tin stabilizers, and the performance characteristics vary depending on the chemical properties of the stabilizers.

The evidence offered by Plaintiffs also supports our finding. Customers did use some tin

stabilizers interchangeably, (Burch Zehner Dep. 121:12-23, June 7, 2005 (where employee of Crane explained that he thought Mark 1900 was interchangeable with TM-181 and possibly an Arkema 161 grade product)); however, before doing so, customers engaged in the approval process described by Dr. Summers, (see id. 373:8-374:22 (where Crane employee testified that Crane would not “dual source” products until they “had been approved”)), which demonstrates that performance was the principal determinant in purchasing decisions. Plaintiffs in fact rely on numerous documents showing that customers did not purchase tin stabilizers without first running trials or laboratory evaluations to ensure that the stabilizers possessed the desired performance attributes. For example, Plaintiffs rely on a June 11, 2002 call report indicating that a customer “ha[d] run our T-5201 in his substrate formulation,” that the trial “went well,” and that the customer “would [therefore] be placing an order soon.” (P179 (June 11, 2002 call report).) The same call report indicated that the customer was also planning to run “a trial on our T-7020 in the cap and T-5003 in their window profiles as well,” but “he ha[d] stated this in the past and never ran it so we will have to keep pushing him.” (Id.) Numerous other call reports and emails contain similar content. (See, e.g., P181 (May 29, 1992 Witco call report stating that “Morton’s 281SP has been approved as an alternate stabilizer system to Norandex’s present Atochem system (T172 & %340)” and that “Paul has evaluated Mark 1971 in the lab and concluded that performance is similar to Morton’s 281SP”); P187 (May 2002 email exchange indicating that Ato-Fina’s “T-176 (butyl) is our Mk1939 (methyl),” that Rohm and Haas’s “TM281SP would be our Mk1971,” and that “[w]e have run trials with Mk1930 vs. Ato T-172 that look good”).) While Plaintiffs rely on these documents in an attempt to show that tin stabilizers used for a certain function are interchangeable, the documents actually show that

customers would not use tin stabilizers interchangeably without first determining whether the stabilizers possessed the desired performance attributes. Customers are clearly concerned with the tin stabilizers' performance, and that concern drives purchasing decisions.

Plaintiffs also rely on documents that show that Defendants described some tin stabilizers as “competitive” with or “comparable” to other tin stabilizers, but these documents do not show that tin stabilizers are interchangeable. First, the documents show that Defendants viewed many tin stabilizers as having no competitors. (See, e.g., P179 (June 11, 2002 call report listing some products with competitors—including T-7020 and Mark1900, T-5201 and Mark 2903—but also listing several products that had no competitors—including T-5003, T-340, Mark 1920, T-172, and TM-202); P180 (June 11, 2002 call report listing some products with competitors—T-5003R and T-340, T-5152 and Ciba 634 as well as R-490, T-7020 and TM-181, T-7021 and T-2080, T-5172R and T-196, T-5063 and R-404C, BC-5-28 and Ferro 6V6A, M-913 and Ferro PD-70, CZL-720A and Baerlocher AC-26—but also listing several products without competitors—including T-4661R, BZ-5093, and CH-55); P182 (May 21, 1997 letter from Witco to UTC Director of Purchasing comparing Mark 1900 to Akcros T94C and Morton TM 181, Mark 292 to Ferro TC 840, Mark 6731 to Amfine CPS1, Mark 1178 to DoverPhos 4, and Drapex P27 to Emery 9076A); P183 (December 3, 1997 email describing Morton's TM-181 as a “Mark 1900 equivalent”).) Thus, while Dr. Beyer relies on these documents for his opinion that tin stabilizers are interchangeable, the documents merely show that Defendants viewed some tin stabilizers as “comparable” or “competitive” but also viewed other tin stabilizers as peerless.

Finally, the fact that Defendants viewed some tin stabilizers as competitive does not actually support Plaintiffs' argument because even these tin stabilizers are not interchangeable.

To support his opinion that tin stabilizers are interchangeable, Dr. Beyer drew our attention to several documents that he described as “crosswalks” and that list tin stabilizers that Defendants viewed as competitive. (See Hr’g Tr. 60:3, June 28, 2010 AM Session; see also P188 (Barlocher Bit Info Letter); P189 (Competitive Stabilizer Counterparts); P190 (Tin Stabilizer Competitors); P193 (Competitive Pipe Stabilizers); P194 (Competitive Products with Plastic Additives Applications charts); P195 (email with competitors’ equivalent tables).) It is certainly true that the crosswalk documents show that some tin products were considered “competitive” with other tin products. (See, e.g., P194¹⁰ (chart listing competitive stabilizers by application).) More importantly, they show that some tin products were viewed as similar or identical in performance to some other tin products. (See, e.g., P188 (January 1997 Barlocher Bit Info Letter listing Akros and Barlocher products that Barlocher believed gave either the same or a very similar performance).) However, many of the tin stabilizers that Defendants viewed as competitive were not interchangeable; they had different performance attributes that would have affected their suitability for certain applications.

For example, the crosswalk document entitled “Competitive Pipe Stabilizers” is a chart that compares the chemical makeup of products produced for pipe applications by four different companies, including Rohm & Haas (TM-694), Cardinal (CC-7711),¹¹ Atochem (T-176), and

¹⁰Although not specifically discussed by the parties, we should note that this document is a chart containing a “Market Drivers” column. (P194.) The Market Drivers column lists cost for each application, but it also includes factors like weatherability, gloss, impact, rates, clarity. (Id.) For some applications, cost is the only market driver listed. For other applications, many more factors are listed. This is consistent with Dr. Summers’ testimony and with our finding that some tin stabilizers are interchangeable, but others are not. It is inconsistent with Dr. Beyer’s testimony.

¹¹Cardinal is not a party to this action.

Witco (MK-1939). (P193.) The components of the products compared include, among other things: (1) how much tin is in the stabilizer and therefore how much material in the stabilizer can stabilize PVC; (2) whether the stabilizer is a methyl tin or a butyl tin; (3) the percent “mono,” which reveals how quickly the product reacts and therefore how good the color will be; (4) the amount of sulfur in the stabilizer; and (5) a miscellaneous category. (Hr’g Tr. 5:1-23, June 29, 2010 Afternoon Session.) A difference in the amount of tin would “in and of itself . . . make the . . . products not interchangeable and not substitutable” because there would be “a difference in the stabilizing effect” between the two chemicals, (id. at 5:7-11), but only two of the stabilizers compared in the crosswalk—TM-694 and MK-1939—had the same tin percentage. Moreover, TM-694 and MK 1939 are methyl tins, while CC-7711 and T-176 are butyl tins; butyl tins have a slower reaction than methyl tins, and they therefore “could not be interchanged one for the other.” (Hr’g Tr. 126:24-127:3, June 29, 2010 AM Session.) Even the methyl tin stabilizers are not interchangeable with each other, as MK-1939 has a food grade antioxidant that TM-694 does not include. (Hr’g Tr. 6:13-18, June 29, 2010 Afternoon Session.) And the butyl tin stabilizers are not interchangeable because T-176 similarly has an antioxidant that CC-7711 does not have. (Id.) TM-694 and T-176 both had a percentage “mono” of 90, which means that they would react more quickly than both CC-7711, which had a percentage “mono” of 85, and MK-1939, which had a percentage “mono” of 75. (Id. at 5:17-23.) Finally, each of the four tin stabilizers compared in the crosswalk have different sulfur levels, which indicates that they would all have varying levels of reactivity. (Id. at 6:6-9.) Based on these differences, we find that Dr. Beyer incorrectly assumed that the tin stabilizers compared on the crosswalk were interchangeable when in fact the stabilizers listed as competitive on the crosswalk have differing performance

characteristics and therefore could not be used interchangeably. (Id. at 4:21-25.)

Dr. Beyer similarly bases his opinion on a chart compiling “product equivalents” that compares tin stabilizers produced by Rohm and Haas, Crompton, Atofina, and Cardinal. (P195.) The chart compares tin stabilizers that are referred to as thioglycolates, as well as tin stabilizers that are referred to as reverse esters. (P195.) As a preliminary matter, among the thioglycolates and the reverse esters, there are many products that are not compared to any other products. (Id.; see also Hr’g Tr. 10:21-11:14, June 29, 2010 Afternoon Session.) For example, Rohm and Haas produced a thioglycolate called TM-161 that was used with chlorinated PVC; Crompton, Atofina, and Cardinal did not produce a competitive product. (Hr’g Tr. 10:14-20, June 29, 2010 Afternoon Session.) Rohm and Haas also produced a thioglycolate called TM-404 which had been indicated as safe for food contact and as low odor; Crompton and Cardinal produced no competitive product, and Atofina produced a product that the chart lists as competitive but that was not indicated as safe for food contact or as low odor. (Id. at 11:7-14.) Among the reverse esters, the chart compared a Rohm and Haas product called TM-694 to an Atofina product called T-176 even though TM-694 was a methyl tin and T-176 was a butyl tin, which renders the products “not interchangeable and substitutable because the butyl is going to react more slowly to stabilize the PVC than the methyl.” (Id. at 12:8-21.) Again, we find that Dr. Beyer incorrectly assumed that the products compared on the crosswalks are interchangeable when they in fact are not. In sum, we conclude that Dr. Beyer’s opinion with regard to the interchangeability of the tin products at issue is inaccurate, and his opinion in this regard therefore cannot serve as evidence of impact that is common to the class.

ii. Interchangeability of ESBO

As was the case with regard to his tin opinion, Dr. Beyer's opinion with regard to the ESBO products at issue in this litigation is also based on his review of documents and deposition transcripts. However, our above analysis of tins demonstrates how misleading that reliance can be, and we therefore give his opinion little weight. Indeed, based on the convincing testimony of Dr. Summers, we find that Dr. Beyer repeats the same mistakes in his ESBO opinion. And we therefore find that Plaintiffs have not demonstrated that the ESBO products at issue are interchangeable.

Unlike the large number of tin products at issue in this litigation, each Defendant manufactured only one ESBO product, (Hr'g Tr. 32:22-33:1, June 29, 2010 AM Session), but we credit Dr. Summers' testimony that the varying chemistries of ESBO products alter their performance characteristics. (Id. at 13:21-24.) An ESBO with a stearate, for example, is not compatible with PVC. (Id. at 16:2-10.) The more oxygen that an ESBO has, the better it will function as a "co-stabilizer for improving the stability of PVC." (Id. at 16:21-17:3.) Accordingly, "[t]here are reasons for [ESBO products] not to be substitutable," (id. at 18:4-8), and ESBO customers therefore must concern themselves with the performance attributes before deciding to purchase one ESBO over another. For example, manufacturers of "medical materials, such as saline bags, tubing, [and] blood bags, . . . go through a very rigorous testing to make sure their devices are safe," and, in order to ensure that they have "the same material and performance month after month, year after year," they "simply instruct the people who are making [these] formulations and compounds not to switch anything." (Id. at 18:9-21.) For "a less critical application," ESBO products may be interchanged, (id. at 27:14-21), but even then

customers must concern themselves with differences in performance that can affect color and aging, as well as “how [the ESBO products] migrate to the surface of the PVC products.” (Id. at 29:19-25.)

Based on Dr. Summers’ testimony, we find that the documents underlying Dr. Beyer’s do not reflect the realities of ESBO customer experiences. Dr. Beyer’s opinion is based on deposition testimony and documents obtained from Defendants that, in conclusory fashion, describe ESBO as a “commodity product.” (Randy Loula Dep. 173:12-25, Feb. 8, 2007 (“One thing, to clarify here, is these products are commodities. And they—for the majority of the market segments ESBO[—]is ESBO. . . . [S]ometimes it’s commingled. A customer will commingle everybody’s production in one tank at some place. . . . [T]here’s relatively little market or product integrity at that point.”); see also P300 (“In the largest volume commodity product, epoxidized soybean oil, sales volume is very sensitive to price. We have been able to get our price increases through.”); P301 (“The basis of most EPOXIDES competition is more commodity-like, where the focus is price.”).) Dr. Beyer does not explain the basis for the conclusions set forth in the documentary evidence that underlies his opinion, and it would appear that he does not in fact know how these conclusions were reached. Since Dr. Beyer’s opinion is nothing more than a repetition of unexplained conclusions, we cannot afford it much weight. In fact, based on the testimony of Dr. Summers, we find that Dr. Beyer either ignores or overlooks the actual complexities of the ESBO customers’ experiences. Accordingly, we find that Dr. Beyer’s opinions with regard to the interchangeability of both tin and ESBO products is inaccurate. Therefore, Plaintiffs cannot rely on these opinions to demonstrate impact on a basis common to the class.

2. Avoidance of Impact

Dr. Beyer's opinion that class members could not avoid impact because Defendants dominated the markets for tins and ESBO overlooks the fact that class members did in fact avoid paying increased prices for at least two reasons. First, class members were able to obtain lower prices from Defendants by threatening to buy from non-Defendant producers. (Hr'g Tr. 13:21-25, June 29, 2010 Evening Session.) Non-Defendant producers accounted for about 9% of the tin market and 11 to 13% of the ESBO market. (Hr'g Tr. 68:17-19, June 28, 2010 AM Session; Hr'g Tr. 12:8-13, June 29, 2010 Evening Session.) In some product segments, non-Defendant producers actually had in excess of 20% of the market. (Hr'g Tr. 15:4-11, June 29, 2010 Evening Session.) And there is evidence showing that some customers were able to obtain lower prices from Defendants based on competition from non-Defendants. For example, a 1993 Arkema Monthly Report shows that non-Defendant producer Cardinal, which went out of business in 2000, was able to win a pipe stabilizer bid for a customer called CanTex because "Cardinal's bid price . . . was about \$0.10/lb. lower than 1993 pricing." (D51 ("Cardinal also won bids at several key 'Morton accounts.'").) In response, Arkema not only bid low to win an order from a "Cardinal account," but it more importantly "reduced pricing at selective accounts where we have business." (Id.) Thus, the Report observed, "[t]here will be continuing pressure on pipe stabilizer prices until Cardinal changes their current strategy." (Id.)

Additionally, the evidence shows that Defendants, despite their alleged agreement to the contrary, lowered prices to compete for sales. During the conspiracy period, Defendants often observed competition in the market. (See D90 (April 2000 Crompton monthly report indicating that pricing "in general for the tin business remains very aggressive"); D96 (January 2001

Arkema document indicating that “[c]ompetitive pressures have increased broadly,” and “[w]e have had to match lower competitive prices at many accounts to maintain our share Witco has been especially aggressive”).) One document gives a fairly detailed account of competition between Defendants leading to decreased prices for some customers. For example, in a January 2001 report, Arkema indicates that it lost business with several customers due to competition from Witco based in part on lower prices. (D96.) The Arkema document also reveals that Arkema lowered prices to “protect its position” based on “activity” between Witco and Rohm and Haas regarding a customer called Georgia Gulf. (Id.) Based on this evidence, we conclude that contrary to Plaintiffs’ representations, individual class members did have an opportunity to avoid paying any increased prices caused by the alleged conspiracy.

D. Pricing Structure

Plaintiffs’ pricing structure analysis cannot serve as proof of impact common to the class members.¹² Dr. Beyer testified that the pricing for tin and ESBO products during the conspiracy period displayed a “structure” which led him to conclude that, if a conspiracy existed, every purchaser would have been impacted by the conspiracy. (Pls.’ Post-Hr’g Mem. 17; Pls.’ Supplemental Mem. 21; Pls.’ Mem. Supp. Revised Mot. 16.) By structure, Dr. Beyer means that he has observed prices “moving similarly” over time. (Hr’g Tr. 5:9-13 June 28, 2010 Afternoon Session.) That observation suggests to Dr. Beyer that the prices are “being affected by the same supply and demand factors in the market[,] [a]nd any other factor that may be affecting these prices[,] such as the alleged conspiracy.” (Id. at 7:6-10; see also Hr’g Tr. 10:12-17, June 28,

¹²Dr. Beyer described his pricing structure analysis as “not necessary” to a finding of class impact but instead “confirmatory.” (Hr’g Tr. 7:23, June 28, 2010 Afternoon Session.) He made no similar clarifications when describing the other proposed methods of common proof.

2010 Evening Session (“[B]ecause there is a pricing structure . . . factors that are common to the class members, such as changes in supply and demand will affect prices to all customers[,] [a]nd that would include changes that are additional that might find their way into the market, such as the alleged conspiracy.”).) Thus, according to Dr. Beyer, if a conspiracy existed in a market that displays a pricing structure, prices for all purchasers would have been affected by the conspiracy.

In order to perform a pricing structure analysis, Dr. Beyer plots transaction data on a graph and then determines, by “visual observation,” whether the prices move similarly over time. (Hr’g Tr. 24:20-25:3, June 29, 2010 AM Session.) His analysis refers “not to the level of prices at a given point in time[,] but [to] the rate of change that happens in those prices over time.” (Id. at 21:14-17.) In this case, Dr. Beyer created pricing structure graphs for both the tin and the ESBO markets, and he concluded that the charts showed that transaction prices moved similarly throughout the class period in both markets. The data that he plotted in each graph reflected the “average monthly prices” paid by certain customers for certain products. (Id. at 28:23-25.) Dr. Beyer did not create a graph that included transactional data for all customers and all products. He testified that he did not “think [he] would be able to get all . . . customers on one graph and have it meaningful.” (Id. at 31:19-23.) Therefore, he created several graphs comparing the price behavior of certain products and customers using the “largest customers and the largest products” in order to “increase[] the likelihood that there would be purchasers for a greater period of time.” (Hr’g Tr. 6:12-16, June 28, 2010 Evening Session.) In total, he analyzed pricing information for 18 of the 256 tin products at issue in this litigation and less than two dozen of the 508 tin class members, as well as less than two dozen of the 503 ESBO class members. (Hr’g Tr. 28:7-19, 32:3-13, June 29, 2010 AM Session.)

As a preliminary matter, some of the graphs that Dr. Beyer prepared do not even superficially show prices moving similarly throughout the class period. For example, in a tin graph labeled Figure 4, Dr. Beyer compared the pricing behavior of eight different tin products from January of 1994 to September of 2003 by plotting the average prices paid by all customers who purchased these products. (P21, slide 26.) Dr. Beyer testified that he viewed the prices “moving similarly” in this graph, but the prices only move along parallel lines for certain times periods. At other times, the prices show marked variation, with the prices for some products remaining steady while the prices for others either fall or rise. The same is true for Dr. Beyer’s ESBO graphs: Figure 6 and Chart 6.5. (P21, slides 94 & 95.) Figure 6 displays the average monthly price paid by certain customers for ten products between January of 1996 and October of 2003. (P21, slide 94.) Chart 6.5 tracks the average monthly price paid by two customers for eight products. (P21, slide 95.) In Figure 6, the price paid by Holm Industries for Vikoflex 7170 remained steady in the fall and winter of 1999, while the price paid by Pliant Corp for the same product spiked, increasing by at least ten cents. (P21, slide 94.) In addition, throughout 2001 and 2002, the price paid by Monsoon Chemicals for Vikoflex 7170 was much more volatile than the price paid by several other purchasers, and in fact increased on several occasions when other customers were experiencing decreased prices. (Id.) In Chart 6.5, we can discern no pattern in the prices paid for the products during the period spanning January of 1996 to January of 1997, with the prices paid by AEP Ind for Flexol Plastczzr EPO appearing especially volatile. (P21, slide 95.) Around January of 1999, the prices paid by Pliant Corp for Vikoflex 7170 and the prices paid by Filmco for Plas-Chek 775 dropped markedly while the prices paid by Anchor Pack for Vikoflex 7170 fell but not nearly as far, and the prices paid by PolyOne for Drapex 6.8

remained relatively stable. (Id.)

Moreover, Defendants' economic expert, Mr. Kaplan produced graphs showing that the prices paid by individual customers were not moving similarly. For example, while Dr. Beyer's Figure 4 plotted the pricing behavior for eight tins based on average monthly prices paid by all customers for those products, Mr. Kaplan produced a graph for one of the eight tins plotting separately the average monthly prices paid by two of the customers that Dr. Beyer aggregated together. (Hr'g Tr. 19:3-11 June 29, 2010, Evening Session; D26 p.1.) Mr. Kaplan's graph shows that between April of 2001 and January of 2004, the prices paid by the two customers for the same product were always at least seventy-five cents different, and while the prices paid moved together at some points, they moved in opposite directions throughout most of that period. (D26 p.1.) In fact, at the end of the period of comparison, the differential between the prices paid by the customers for the product had increased to about \$1.30. (Id.) Mr. Kaplan also produced a graph displaying price behavior for a product used in Dr. Beyer's Figure 4 based on average monthly pricing data for one customer selected by Dr. Beyer—Georgia Gulf—as well as one customer not selected by Dr. Beyer—Tuftex. (D26 p.2.) Mr. Kaplan's graph shows that the customers paid much different prices from January of 1996 through January of 2003, and that while the prices at some points in time moved together, they at other points in time moved in opposite directions. (Id.) The same is true for ESBO. For example, Mr. Kaplan produced several graphs comparing the prices paid by certain customers for the ESBO product Drapex 6.8, and the graphs show that the prices were often moving very differently and sometimes even in opposite directions. (D33; Hr'g Tr. 21:15-24 June 29, 2010 Evening Session.)

In an attempt to rebut the graphs that Mr. Kaplan created using individual transactional

data, Plaintiffs argue that Mr. Kaplan compares the wrong customers or products. According to Plaintiffs, the pricing differences displayed in Kaplan's graphs result from crucial differences like the size of the purchasers and the size of the packages purchased. (Hr'g Tr. 76:4-20, June 30, 2010; Pls.' Supplemental Mem. 21 (stating that Kaplan does not control for package size for tins or volume for ESBO); see also Pls.' Post-Hr'g Mem. 17.) Indeed, Dr. Beyer warned that pricing structure analysis must be used "with care" because it compares only time and price, while other factors—like the size of the customer, the number of observations, and differences among the products purchased—influence price as well. (Hr'g Tr. 5:11-20, June 28, 2010 Afternoon Session.) To illustrate this point, Dr. Beyer produced two graphs—Chart 2.11 and Chart 2.12—that display the average monthly prices paid by certain customers for tin products compared in crosswalk documents. (P21, slides 27 & 28.) Far from bolstering the case for class certification, Plaintiffs' argument shows that the experiences of the individual class members vary depending on a number of factors. Moreover, some of Dr. Beyer's graphs that compare crosswalk products show disparity in pricing behavior. For example, in a graph comparing the average monthly prices paid by PVC Container and Thermoclad for five different tin products between January of 1998 and January of 2003, (P19, Chart 2.5), the prices are always at least fifty cents apart. (Id.; Hr'g Tr. 21:3-5, June 29, 2010 Evening Session.) In early 2001, the price paid by Thermoclad remained steady, but the price paid by PVC Container dropped by almost \$1.00. (P19, Chart 2.5; Hr'g Tr. 21:6-11, June 29, 2010 Evening Session.) When Thermoclad's price declined, the decline occurred over a period of several months during late 2001 and early 2002, and it declined by less than fifty cents. (P19, Chart 2.5.) At the end of the period, the differential between the prices paid by Thermoclad and PVC Container increased to about \$1.00.

(Id.) In sum, the evidence shows that prices did not behave similarly for all products and customers, and the pricing structure analysis set forth by Dr. Beyer therefore cannot serve as proof of impact common to the class.

E. Regressions

Finally, Plaintiffs' regressions¹³ cannot serve as proof of impact common to the class members. Defendants challenge the regressions on a number of fronts, but in resolving the question of whether common issues predominate on the element of impact, we need go no further than expose the regressions' fundamental failure: Plaintiffs must show that individual injury is capable of proof common to the class, but Dr. Beyer's regressions tell us nothing about individual class member experience. Dr. Beyer created two market-wide regressions, one for tins and one for ESBO, with the intent to determine whether the alleged conspiracy raised prices in the tin and ESBO markets, and his results therefore were single, industry-wide estimates of increased price. (Hr'g Tr. 38:2-14, June 28, 2010 Afternoon Session (where Dr. Beyer explained on direction examination that his regressions showed that the alleged conspiracy increased prices "for the industry as a whole" but said nothing directly "about what effect the conspiracy had on any particular cost").) Dr. Beyer used individual transactional data reflecting price, cost, demand, and other factors. (See Hr'g Tr. 35:8-12, June 28, 2010 Afternoon Session (stating that individual data included price as well as cost, demand, and other factors); Hr'g Tr. 34:12-35:16, June 28, 2010 Afternoon Session (describing input of 47,838 individual tin transactions that

¹³A regression is a statistical tool designed to express the relationship between one variable, such as price, and explanatory variables that may affect the first variable. (Hr'g Tr. 8:2-11, June 28, 2010 Afternoon Session.) Regression analysis can be used to isolate the effect of an alleged conspiracy on price, taking into consideration other factors that might also influence price, like cost and demand. (Id.)

occurred between January of 1994 and December of 2006); Hr’g Tr. 18:8-18, June 28, 2010 Evening Session (describing 31,834 ESBO transactions that occurred between January of 1990 and December of 2006). Because he did not set out to measure impact on individual class members, he “grouped or pooled” all of the individual tin data in the tin regression and the ESBO data in the ESBO regression. (Hr’g Tr. 40:20-43:12, June 28, 2010 Evening Session.) Because the relationships between price and supply and demand could vary based on factors unique to individual customers, products, or package sizes, Dr. Beyer attempted to account for these factors by including what he referred to as “fixed-effect variables” in his regression models. (Hr’g Tr. 25:11-27:17, June 28, 2010 Afternoon Session; Hr’g Tr. 16:1-15, June 28, 2010 Evening Session.) The result for the tin regression shows that “prices of tin stabilizers . . . were elevated by 4.3 percent and statistically significant,”¹⁴ (Hr’g Tr. 37:4-8, June 28, 2010 Afternoon Session.), and the result for the ESBO regression shows an elevation in prices of 7.3 percent, (Hr’g Tr. 19:9-2, June 28, 2010 Evening Session).

By Dr. Beyer’s own admission, his industry-wide regression results are in no way indicative of individual impact. Dr. Beyer admitted that his regressions do not “show . . . that each and every class member . . . paid a higher price than they would have paid absent a

¹⁴Because Plaintiffs have not obtained tin transaction data from Defendants for the period from 1990 to 1993, Dr. Beyer used a different method to determine whether the alleged conspiracy raised the market prices for tin during this time period. He reviewed Arkema’s estimates of its annual tin prices during those years and compared those estimates to available proxies for demand and supply. (Hr’g Tr. 39:8-25, June 28, 2010 Afternoon Session.) In Dr. Beyer’s opinion, the changes in Arkema’s estimated annual tin prices were not consistent with changes in supply and demand, and he therefore concluded that “there could be something else occurring at this point in time.” (*Id.* at 40:1-5.) Thus, he concluded that “the market potentially [was] not competitive[,] and that . . . if we, in fact, had data for this period, the same kind of relationship that [he] discovered through the regression analysis would apply to these earlier years as well.” (*Id.* at 40:5-10.)

conspiracy,” and they therefore “do not show that each and every class member was impacted by the alleged conspiracy.” (Hr’g Tr. 32:7-33:4, June 28, 2010 Evening Session.) Moreover, he admitted that the regression results do not reveal anything about the pricing experiences of particular customers of tin and ESBO. (Hr’g Tr. 40:15-19, June 28, 2010 Evening Session.) When Dr. Beyer was asked if the industry-wide estimates generated by his models were equally applicable to all customers, he responded only that they “could be.” (Id. at 42:12.) But he was “not saying that [they] necessarily would be.” (Id. at 12-13.) Rather, he “had a very specific and targeted research agenda which was to test . . . the presence or absence of the alleged conspiracy contributing to the elevation of prices of ESBO and tin stabilizers.” (Id. at 42:12-16.) Nonetheless, he admitted that Plaintiffs in this case are attempting to use the single, industry-wide estimates as if they were equally applicable to all class members. (Id. at 42:22-43:8.) Dr. Beyer did not do anything, such as perform individual regressions, to confirm that his industry-wide regressions accurately represented any individual class member’s pricing experiences during the class period. (Id. at 33:3-4.)

Individual impact may be presumed where the alleged conspiracy inflates market prices and it “is clear that the [alleged] violation results in harm to the entire class,” Hydrogen Peroxide, 552 F.3d at 325-26 (citing Bogosian, 561 F.2d at 455, and Newton, Fenner & Smith, Inc., 259 F.3d at 179 n.21)), but this is not such a case. In addition to Dr. Beyer’s admission that his regressions produce only single, industry-wide estimates that do not help determine whether each class member suffered any impact, unrefuted evidence shows that the single estimates produced by Dr. Beyer’s regressions are in fact not representative of individual class member experience. Mr. Kaplan used Dr. Beyer’s regression models to run regressions for a sampling individual tin

and ESBO class members. (Hr’g Tr. 80:6-14, June 29, 2010 Afternoon Session.) Looking at the ESBO regressions first, Mr. Kaplan was only able to run the individual regressions for 115 of the 503 ESBO customers because that is the subset of customers that purchased the products in both the conspiracy and the post-conspiracy periods, and also that had what Mr. Kaplan viewed as sufficient observations—30 degrees of freedom—in order to generate reliable results. (Id. at 84:5-12.) However, those 115 customers represented 86% of the volume purchased by all 503 ESBO customers during the conspiracy period. (Id. at 83:24-25.) Of the 115, 81 “show[ed] no evidence of a statistically significant increase in prices as a result of the alleged conduct.” (Id. at 86:13-18.) Of the 81, 58 showed “no evidence of a price change” and 23 “show[ed] evidence that certain customers paid lower prices in the claimed conspiracy period in juxtaposition to the post-conspiracy period.” (Id. at 86:22-87:2.) Thus, only 34 of the 115 customers showed evidence of a “significant increase in price” as a result of the alleged conspiracy. (Id. at 87:3-13.)

Turning to the individual tin regressions, Mr. Kaplan could only run regressions for 155 customers because he again selected only customers that made purchases during both the conspiracy and post-conspiracy periods, and he again used 30 degrees of freedom as a guideline for an adequate number of observations. (Id. at 101:11-14.) Those 155 customers represent 89% of the tin volume sold during the conspiracy period. (Id. at 100:13-15.) While 56 of the 155 showed evidence of a statistically significant increase in price, 99 did not. (Id. at 100:23-25.)

Dr. Beyer ran Mr. Kaplan’s individual regressions and reached the same results.¹⁵

¹⁵Plaintiffs state that it may not be appropriate to run individual regressions using Dr. Beyer’s market-wide cost and demand factors rather than cost and demand factors specific to each individual purchaser. (Pls.’ Supplemental Mem. 20; see also Pls.’ Post-Hr’g Mem. 22 (“Moreover, Dr. Beyer suggested that all Mr. Kaplan’s individual regressions may be misspecified, because they do not include a proxy for each customer’s demand and supply rather

Faced with this evidence, Plaintiffs give the surprising response that Mr. Kaplan's results cannot be accepted because his regressions cannot be used by "all or virtually all" of the class members to demonstrate impact. (Pls.' Post-Hr'g Mem. 24.) This argument proceeds in several steps. First, Plaintiffs repeat Mr. Kaplan's observation that individual regressions could not be run for 353 tin purchasers and 388 ESBO purchasers.¹⁶ (Pls.' Supplemental Mem. 20.) Plaintiffs then argue that a significant number of Kaplan's individual tin and ESBO regressions are misspecified, are not statistically significant, or rely on insufficient transactional data. (Id.; Pls.' Post-Hr'g Mem. 23-24.) Based on these objections, Plaintiffs conclude that "for all or virtually all members of the subclasses, Mr. Kaplan's individual regressions cannot be used." (Pls.' Post-Hr'g mem. 24.) Plaintiffs also assert that Mr. Kaplan could not "come up with any possibly reasonable alternative to a market-wide regression for showing impact or calculating damages." (Pls.' Post-Hr'g Mem. 24.) "Thus, even if it were appropriate to use Mr. Kaplan's individual regressions . . . approximately 85% of the tin purchasers in the class period and approximately 93% of the ESBO purchasers in the class period would have to use Dr. Beyer's market-wide analysis rather than any individual regression to prove their impact and damages." (Pls.'

than for market-wide demand and supply." (quoting Hr'g Tr. 51:10-22, June 28, 2010 Evening Session)); Hr'g Tr. 51:13-16, June 28, 2010 Evening Session (where Beyer stated that it "would take more studying" to determine whether the industry-wide cost and demand variables are appropriate for use in individual regressions).) Because Plaintiffs and their expert give no explanation as to why this might be inappropriate, their objection remains entirely speculative, and we therefore cannot give it credence.

¹⁶According to Plaintiffs, 32 of the 353 tin customers and 50 of the 388 ESBO customers only made purchases after the conspiracy period, and "they [therefore] would not be included in the subclasses in any event." (Pls.' Supplemental Mem. 20 n.18.) Therefore, the number of class members for which Mr. Kaplan did not run individual regressions decreases to 321 tin customers and 338 ESBO customers.

Supplemental Mem. 20; see also Pls.’ Post-Hr’g Mem. 24.) This argument puts the cart before the horse by assuming that there must be some way for all or substantially all class members to demonstrate impact. However, it is Plaintiffs’ burden to demonstrate that impact is capable of proof. Thus, where we are presented with evidence showing that Plaintiffs’ proposed method of proof demonstrates impact where there in fact was none, a motion for certification will be denied. We will not, as Plaintiffs seem to suggest, nonetheless allow the class to proceed even though the evidence shows that a number of the class members have no cause of action.

We find Plaintiffs’ objections to the reliability of Mr. Kaplan’s individual regressions unconvincing. As a preliminary matter, however, we should note that even if we accepted Plaintiffs’ arguments about specification, and therefore whittled the acceptable results of Mr. Kaplan’s exercise, we would still have evidence that some of the individual customers of both tin and ESBO products were not overcharged during the conspiracy period. Accepting all of Plaintiffs’ objections, we would be left with 32 individual ESBO regressions, 16 of which showed a statistically significant overcharge during the conspiracy period, and 16 of which showed no statistically significant overcharge during the conspiracy period. (Hr’g Tr. 22:14-23:4, June 30, 2010; Pls.’ Post-Hr’g Mem. 23.) In addition, we would be left with 74 individual tin regressions, 23 of which showed a statistically significant overcharge, and 51 of which showed no statistically significant overcharge. (Hr’g Tr. 34:9-17, June 30, 2010; Pls.’ Post-Hr’g Mem. 23.) Plaintiffs further narrow that 51 by 7, arguing that 7 regressions are “unbalanced” as they contain too few transactions during the conspiracy and post-conspiracy periods. (Pls.’ Post-Hr’g Mem. 23.) Putting aside the fact that Plaintiffs do not tell us how many, if any, of the 23 individual regressions showing a statistically significant overcharge they would also consider

unbalanced, we are still left with 44 of 74 individual tin regressions showing no evidence of impact. Thus, even ruling out all of the individual regressions that Plaintiffs find to be unreliable, we are still left with individual regressions showing that some of the class members suffered no impact during the conspiracy period. Plaintiffs contend that if we rule out the “unreliable” individual regressions, we are left with “too few remaining individual regressions to reach any reliable conclusions.” (Pls.’ Proposed Findings ¶ 41(h).) We disagree. Defendants have shown that Plaintiffs are using Dr. Beyer’s market-wide regressions to show impact for all class members when some class members did not suffer impact, and even the “few remaining individual regressions” lead to that conclusion.

In addition, we find Plaintiffs’ objections unconvincing. First, Plaintiffs argue that the majority of Mr. Kaplan’s individual regressions are not well-specified. According to Plaintiffs, 83 of the 115 ESBO regressions and 81 of the 155 tin regressions were misspecified. (Pls.’ Post-Hr’g Mem. 23.) This argument is based on the fact that these regressions “had the wrong sign on the coefficients for the cost or demand variables or were not statistically significant.” (*Id.*) By this, Plaintiffs mean that they would expect the cost and demand coefficients to be positive and statistically significant, whereas Mr. Kaplan’s individual regressions include examples where either the cost or demand coefficients are either negative or not statistically significant. (Hr’g Tr. 19:13-13, 33:3-8, June 30, 2010; Pls.’ Proposed Findings ¶ 41(c).) Plaintiffs contend that their expectation is based on economic theory and market conditions, (Pls.’ Proposed Findings ¶¶ 41(c), (d), & (f)), but their cross examination of Kaplan reveals that their expectation is based solely on economic theory, (see, e.g., Hr’g Tr. 28:3-6, June 30, 2010 (“And in general, Mr. Kaplan, *according to economic theory*, would you expect the sign of the coefficient of the cost

variable here to be positive in a multiple regression with price as the explanatory variable?”) (emphasis added); see also Hr’g Tr. 29:22-25, June 30, 2010 (“*As a matter of economic theory*[,] would you expect that the coefficient on the demand variable to be positive in a multiple regression with price as the dependent variable?”) (emphasis added)). In addition, Dr. Beyer himself testified that his expectations were based solely on economic theory. (See, e.g., Hr’g Tr. 72:24-73:3, June 28, 2010 Afternoon Session (“And by misspecified[,] I mean specifically that the economic variables, the supply and demand, have . . . a sign that economic theory would not predict, which means not positive but negative”); Hr’g Tr. 30:1-3, June 28, 2010 Evening Session (“[T]he economic variables have the wrong signs that economic theory would anticipate or predict that should be there”).) Plaintiffs have not, however, given any basis for their expectation that the conditions in the markets for tin and ESBO products would be consistent with economic theory. In addition, Mr. Kaplan did not “quarrel with the idea that[,] in a hypothetical textbook example[,] . . . increase in cost will increase prices.” (Hr’g Tr. 28:11-15, June 30, 2010.) “But in the real world, . . . there are many, many reasons why . . . you might find that the relationship between those two variables is not positive.” (Id. at 28:15-18.) For example, one customer may be a “very aggressive negotiator,” and so even as costs go up, that customer is able to “extract lower prices.” (Id. at 29:7-11.) “Or one of the defendants may have seen their costs go up but they decided to give a lower price to [a certain customer] for any number of strategic reasons.” (Id. at 29:10-13.) Mr. Kaplan further testified that he had reviewed “many, many documents” in this case that did in fact demonstrate Defendants offering lower prices despite cost increases. (Id. at 29:13-14.) In addition, even where demand is increasing, competition in the market may force a Defendant to nonetheless offer lower prices.

(Id. at 30:1-9.) We find Mr. Kaplan's explanation persuasive. Plaintiffs have shown that the coefficients on either the supply or demand variables in some of Mr. Kaplan's individual regressions were inconsistent with theoretical explanations, but Plaintiffs jump to an unsupported conclusion when they argue that the individual regressions are therefore misspecified. We find that the inconsistency is explained by market realities.

Plaintiffs also object to the reliability of some of the individual regressions on the ground that they rely on too few data points, or that Mr. Kaplan used too few degrees of freedom. As stated above, Mr. Kaplan used 30 degrees of freedom as a guideline. Dr. Beyer's testimony on an adequate number of observations was vague, (Hr'g Tr. 73:8-15, June 28, 2010 Afternoon Session; Hr'g Tr. 30:6-12, June 28, 2010 Evening Session), but Dr. Beyer agreed that 100 degrees of freedom would generally be sufficient, (Hr'g Tr. 56:18-22, June 28, 2010 Evening Session). In response, Mr. Kaplan produced charts summarizing his findings for only those tin and ESBO customers with over 100 degrees of freedom. (Hr'g Tr. 89:8-16, 101:15-102:7, June 29, 2010 Afternoon Session.) These charts listed 50 customers each, the top 50 customers of both tin and ESBO products during the conspiracy period. (Id. at 89:12-16, 101:15-17.) Of the top 50 ESBO customers, 32 showed no evidence of any overcharge during the conspiracy period, (id. at 92:18-93:23), and of the top 50 tin customers, 24 showed no evidence of any overcharge, (id. at 102:8-14). These charts show that Plaintiffs' objection has no real impact on the import of Mr. Kaplan's individual regressions.

Finally, Mr. Kaplan also used Dr. Beyer's model to run aggregate or single-effect regressions for the tin and ESBO customers for which he could not run individual regressions, (id. at 98:4-17, 103:11-23), and Plaintiffs have not mounted any challenge to these regressions.

Mr. Kaplan took the 388 ESBO customers that accounted for 14% of the volume of ESBO products sold during the conspiracy period, and he pooled them together the same way Dr. Beyer pooled together all 503 ESBO customers. (Id. at 98:7-12.) When he ran this regression, the result did not show any evidence of an overcharge. (Id. at 98:13-17.) Mr. Kaplan also pooled the 353 tin customers for whom he ran no individual regressions—those that accounted for 11% of the total volume of tin products sold during the conspiracy period—and the result did not show any evidence of an overcharge. (Id. at 103:19-21.) In sum, Dr. Beyer admits that his regressions are not necessarily representative of individual class member experience, and unrefuted evidence shows that some class members suffered impact while others did not. We therefore find that Plaintiffs cannot rely on Dr. Beyer’s regressions to demonstrate impact on a basis common to the class.

IV.CONCLUSION

Having reviewed all of the relevant evidence and arguments presented by the parties, and having resolved all factual and legal disputes relevant to class certification in this matter, this Court finds that Plaintiffs have not carried their burden under Federal Rule of Civil Procedure 23(b)(3). Specifically, Plaintiffs have not demonstrated that antitrust impact is capable of proof by evidence common to the class. Rather, the Court finds that resolution of this element of Plaintiffs’ claims will require individual treatment, and class certification therefore is unsuitable. An appropriate order follows.

BY THE COURT:

/S/LEGROME D. DAVIS

Legrome D. Davis, J